

REMARKS

This paper is filed in response to the Office Action mailed 22nd August, 2007. Claims 1- 15, 18- 23, 25 and 26 were pending in the application. Of these claims 1, 8, 23 and 25 are amended and claim 4 is cancelled. Therefore, claims 1- 3, 5- 15, 18- 23, 25 and 26 are resubmitted for consideration.

Amendments to the specification:

The specification is objected to because of the lack of spacing in the word "therealong" in paragraph [0014]. The paragraph has been corrected accordingly using the wording "past" and "there-past". Paragraph [0014] has been further amended to include reference to the steps carried out on a second textile article. Basis for this amendment is to be found in original claim 16 and also at paragraph [0029]. No new subject-matter has been added by such amendment.

Rejection of Claims 1- 15, 18- 23, 25 and 26:

Claims 1 and 23 were rejected under 35 U.S.C. § 112 as failing to comply with the written description requirement.

In response to the rejection, the specification has been amended at paragraph [0014] to clearly include support for these claims. This subject matter was originally described at paragraph [0029] and in claim 16. This wording is believed to provide adequate basis justifying the fact that the inventor had possession of the claimed invention at the time the application was filed. The Examiner is respectfully requested to reconsider this rejection of claims 1 and 23 under 35 U.S.C. § 112.

Claims 1- 15, 18- 23, 25 and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Miller or Dawson in view of Teumer.

In response to this rejection, claims 1, 23 and 25 have been amended to specify that the textile is cloth. Basis for this amendment is to be found in paragraphs [0003], [0025] and [0029]. Furthermore, in claim 1 and claim 23 it has been specified that the nozzles are digitally controlled nozzles for delivering jets of droplets. Basis for this feature is to be found in paragraph [0016], [0031] and [0042] to [0044]. Additionally, reference to the operation of

printing has been deleted. Reconsideration of the rejection is furthermore respectfully requested for the following reasons:

In Miller, a substrate web is fed over a number of rollers 34, 38, through a solid shade dyer and then passed through a patterning device 20 comprising a conveyor system. The solid shade dyer is described as being conventional. According to column 3, line 57 to line 64, the substrate may contact the orifice portion of the dyer. There is no suggestion that this solid shade dyer is of the type that produces jets of droplets and this device cannot therefore constitute the rows of nozzles as required by the claim. Miller also includes a patterning device 20 which is described as being a dye jet patterning device. Such devices are understood to work with a jet or stream of dye which may be switched on and off periodically. Furthermore, the patterning device produces patterns i.e. printing. It does not perform the steps of painting, coating or finishing as required by claim 1 and as defined at paragraphs [0007], [0008] and [0009] of the description.

More importantly, Miller does not describe any form of fixation between the web and the conveyor. Present claim 1 requires that the first textile article is affixed to the conveyor to substantially prevent relative movement there-between. An example of such affixation is given in paragraph [0030] of the present specification where it is stated that the article may be affixed by an adhesive.

Finally, Miller does not disclose that a first sequence of operations may be carried out on a first article and a second distinct sequence of operations may be carried out on a subsequent article.

Miller thus differs from the subject-matter of claim 1 in that it fails to disclose: rows of nozzles forming droplets and being used to perform the operations of painting, coating and finishing; the affixing of the textile article to the conveyor; and performing different sequences of operations.

Dawson describes a device for application of liquid to web or sheet material. In the case of the first embodiment of Dawson, individual carpet tiles are placed onto a conveyor e.g. by hand (page 2, line 107) and subsequently removed. There is no disclosure or suggestion that the carpet tiles are in any way affixed to the conveyor. This embodiment would thus be unsuitable for handling cloth. According to the embodiment of Fig. 4 of Dawson, a continuous fabric web is transported over rollers. In this case also, there is no suggestion that the fabric web is affixed to the rollers to prevent relative movement there-between.

Dawson does suggest that instead of applying patterns, finishing liquid may be applied. Nevertheless, it fails to teach that first and second textile articles should be subjected to distinct sequences of operations. In fact, even in the context of patterning it states at page 3, line 95 to line 98 that all carpet tiles are produced according to a predetermined and constant design.

The Examiner has suggested that the person of ordinary skill would combine the teaching of either Dawson or Miller with that of Teumer. It is respectfully noted that Teumer however fails to disclose or reasonably suggest the step of affixing a textile article to a conveyor to prevent relative movement. According to Teumer at column 6, line 6 to line 14, the target 4 (apparently paper – see column 9, line 20) is transported by frictional engagement with wheels 39. It is thus not affixed thereto.

Thus despite combining the teaching of all of these documents, the prior art according to Miller, Dawson and Teumer still at least fails to disclose or adequately suggest that a textile article is fixed to a conveyor in the context of the invention.

The presence of the feature “affixing” in the claim is significant, in particular when taken in the context that the textile article is made of cloth. Cloth (as opposed to e.g. a carpet) is not two-dimensionally stable: it can stretch and skew e.g. according to the direction of the weft. By affixing the article to the conveyor, such distortion and relative movement may be prevented. Distortion and movement of the textile article is a significant problem in the case of deposition of individual droplets using digital control of nozzles as described in the present application. In order to achieve a perfectly uniform finish equivalent to conventional dyeing and coating procedures, the deposition of the droplets needs to be extremely accurate. When printing onto paper or other two-dimensionally stable substrates, this is not an issue since there will be effectively no variation of the substrate across the width of the substrate or from one row of nozzles to the next. In the case of a cloth, any shifting with respect to the conveyor can cause undesirable variation in the spacing of individual droplets.

Applicant is furthermore of the opinion that in the devices and processes of Miller and Dawson, the person of ordinary skill would not have strived to overcome the problem of relative movement of the substrate and conveyor. The devices described use relatively coarse jets operating at low frequency. Such arrangements are suited for printing carpet type material where the final definition of the pattern is relatively low. In such cases, relative movement would be of slight importance to the final appearance of the product, especially in the case of

full font treatment. This is because the substrate is subjected to large volumes of dye solution which is absorbed by the pile and can spread to cover any slight inaccuracy in the deposition.

It is furthermore contested that the person of ordinary skill in the field of coating, painting (full-font) and finishing cloth would seek to adopt the teaching of Teumer. The Examiner has suggested that the person of ordinary skill would look to Teumer to compensate for distortion in a scan or print line due to relative motion of a drop generator. This problem has however apparently only been identified in previous electrostatically deflecting systems (see Teumer at column 1, line 25 to line 28). This problem would thus not have been present in devices such as Miller and Dawson and there would thus have been no reason for the person of ordinary skill to consult Teumer. For the avoidance of doubt, the relative movement between nozzle and target referred to in Teumer is in no way related to the relative movement of a cloth and conveyor due to distortion of the cloth.

Teumer would also have been most inappropriate as a solution to problems identified in Miller and Dawson. Teumer relates to a printing system i.e. a device for marking a discrete pattern of droplets onto a carrier or target, apparently paper, to e.g. impart information. This field of endeavor may be considered to be generally distant from the present field of the invention. As described in the present description, the operations of coating, painting and finishing have been hitherto performed by traditional procedures using e.g. baths and rollers. Miller and Dawson consider the use of jetting devices primarily for the purpose of patterning or printing onto textiles such as carpets. The type of dye solutions used in Miller and Dawson are totally distinct from the ink used in the field of graphical printing onto paper. The acid dye solutions suggested in Miller (example 1) would be totally unsuitable for use in the device of Teumer which requires electrostatic charging of the droplets. Equally, the ink of Teumer would not be suitable for performing the operations contemplated by Miller or Dawson. Furthermore, Teumer would be unsuitable for applying the volumes of fluid required by Miller and Dawson for effectively patterning a carpet (50 ml/min/applicator see Miller at col 5, line 53). The device of Teumer is understood to deliver at most 5 ml/min/applicator based on the described droplet size and maximum frequency.

For all of the above reasons, the matter as presently claimed in claim 1 is considered to be non-obvious over the cited references. The Examiner is respectfully requested to reconsider the rejection and allow claim 1.

Claims 23 and 25 and dependent claims 2, 3, 5 to 15, 18 to 22 and 26 rely on the same inventive features as described in relation to claim 1. For the same reasons, reconsideration and allowance of these claims is also respectfully requested.

Prior to issue of a final rejection, Applicant respectfully request the opportunity of a telephonic interview. As Applicant's representative is located in Europe, the Examiner is requested to contact the undersigned by email at owend@howrey.com in order to arrange such an interview.

Any extension of time that may be deemed necessary to further the prosecution of this application is hereby requested. The Commissioner is authorized to charge any fees which may be required, or credit any overpayment, to **Deposit Account No. 08-3038**, referencing the docket number shown above.

The Examiner is respectfully requested to contact the undersigned by telephone at the number given below in order to resolve any questions.

Respectfully submitted,



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